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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,684	03/15/2001	Dieter Schulz	50626.19	5285

7590

11/02/2004

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EXAMINER

JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/808,684	<b>Applicant(s)</b> SCHULZ, DIETER	
	<b>Examiner</b> Alexander Jamal	<b>Art Unit</b> 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 September 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4,8-10 is/are allowed.
- 6) ☒ Claim(s) 5-7 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Amendment*

1. Examiner notes that no claims have been amended by applicant. Arguments concerning the rejection of claims 5-7 and 11 have been submitted by applicant.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 5,7** rejected under 35 U.S.C. 103(a) as being unpatentable over Xie et al. (5644634), and further in view of Timm (4231103).

As per **claim 5**, Xie discloses a multi-frequency tone detector comprising an analysis filter 124 (Fig. 2) for detecting tone energies at multiple frequencies (Col 7 line 1-16). Xie further discloses a decision logic block to detect tone frequencies based upon the detected energy (Col 7 lines 32-45). By allowing different window sizes for each bin, the window size is chosen to be the most accurate for each bin (Col 9 lines 5-36), and each window is centered on the desired frequency (Col 11 lines 25-50). However, Xie does not specify aligning the spectral nulls of the filter response with any tones with frequencies adjacent to the tone being detected.

Timm teaches that in spectral analysis with adaptive windows, the filter response has a null at frequencies  $F_m$  (Col 1 line 46 to Col 2 line 45). Timm further teaches that leakage may occur (inaccurate detection) if the input signal contains signals with frequency components other than  $F_m$ . It would have been obvious to one of ordinary skill in the art at the time of this application that Xie could align the spectral nulls of the filter response to fall on any signals adjacent to the signal being detected for the advantage of further reducing any spectral leakage and increasing detection accuracy.

As per **claim 7**, Xie's analysis filter is a digital filter (Col 3 lines 25-31).

4. **Claims 6,11** rejected under 35 U.S.C. 103(a) as being unpatentable over Xie et al. (5644634) and Timm (4231103) as applied to claim 5 above, and further in view of Felder et al. (6370244).

As per **claim 6**, Xie and Timm disclose applicant's claim 5, however Xie does not mention using a rectangular window for the analysis filter.

Felder teaches a DTMF detector implementing an analysis filter with a rectangular window with variable window size to detect energy in each frequency bin (Col 7 line 66 to Col 8 line 17). It would have been obvious to one of ordinary skill in the art at the time of this application to use a rectangular window in the analysis filter for the purpose of reducing the complexity of the system (Col 8 lines 11-14) while maintaining it's functionality.

As per **claim 11**, Xie's analysis filter is a digital filter (Col 3 lines 25-31).

***Response to Arguments***

5. Applicant's arguments, see Remarks, filed 9-21-2004, with respect to the rejection(s) of claim(s) 5 under 35 USC 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Xie et al. (5644634), and further in view of Timm (4231103).

6. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

***Allowable Subject Matter***

7. **Claims 1-4,8-10** are allowed over the prior art of record

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 703-305-3433. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 703-305-4708. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ

November 1, 2004

  
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